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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listing of claims in the application.

Listing of Claims:

1. ***(Currently Amended)*** A process for producing peroxide crosslinked, extruded polymer parts, ~~mainly tubes,~~ which process comprises:

heating a composition comprising a peroxide crosslinkable polymer, which is characterized by a crystallite melting point and a crosslinking temperature, and wherein the polymer crystallite melting point is different from the polymer crosslinking temperature, in a heated extruder,

wherein the temperature of the polymer in the extruder is controlled by a heating/cooling unit to a value above the crystallite melting point of the polymer but below the crosslinking temperature; and

continuously feeding the composition heated to the crystallite melting point to an extrusion die to form the part; and

maintaining the temperature of the composition in the extrusion die above the crosslinking temperature of the polymer, to effect at least a partial crosslinking of the polymer in the extrusion die.

2. ***(Original)*** The process of Claim 1, wherein heat is provided to the extruder from an external heating/cooling unit.

3. ***(Currently Amended)*** The process ~~as described in~~ of Claim 1, wherein a heat exchange to cool the extruder is provided by an interior heating/cooling unit.

4. ***(Original)*** The process of Claim 1, wherein said extruder is a twin screw extruder.

5. ***(Original)*** The process of Claim 1, wherein the temperature of the polymer in the

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extrusion die is achieved by heating the extrusion die externally.

6. ***(Original)*** The process of Claim 1, wherein the temperature of the polymer in the extrusion die is achieved by the induction of heat from the interior of the extrusion die.

7. ***(Currently Amended)*** The process of Claim 1, wherein the temperature (°C) of the polymer in the extrusion die is at least 15% above the crosslinking temperature (°C) of the polymer.

8. ***(Currently Amended)*** The process of Claim 1, wherein the temperature (°C) of the polymer in the extrusion die is not higher than 60% above the crosslinking temperature (°C) of the polymer.

9. ***(Currently Amended)*** The process of Claim 1, wherein the temperature (°C) of the polymer before entering the extrusion die is not higher than 30% above the crystallite melting point (°C) of the polymer.

10. ***(Currently Amended)*** The process of Claim 1, wherein the crosslinking temperature (°C) of the polymer is approximately 30% above the crystallite melting point (°C) of the polymer.

11. ***(Currently Amended)*** The process of Claim 1, wherein the crystallite melting point of the polymer is approximately 125-140° C.

12. ***(Original)*** The process of Claim 11, wherein the crosslinking temperature of the polymer is approximately 165-185° C.

13. ***(Original)*** The process of Claim 1, wherein the degree of crosslinking of the polymer on discharge from the extrusion die is above 60%.

14. ***(Original)*** The process of Claim 1, wherein the temperature of the unmolten polymer is to approximately 120-140° C in the extruder, above the melting point.

15. ***(Original)*** The process of Claim 1, wherein the part is maintained at a temperature above the crosslinking temperature after discharge from the extrusion die.

16. ***(Original)*** The process of Claim 1, wherein the part is cooled after crosslinking.

17. ***(Currently Amended)*** The process of Claim 1, wherein the melting pressure before entry to the extrusion die is between ~~does not exceed~~ approximately 700-1500 bar.

18. ***(Withdrawn)*** An apparatus to execute the process of Claim 1, comprising an extruder with an inlet and an outlet; a feeding device to feed the polymer to the extruder at the inlet of the extruder; an extrusion die at the outlet of the extruder; and further comprising a heating/cooling unit with which the temperature of unmolten polymer in the extruder can be increased to a temperature above a crystallite melting point of the polymer and in which the heating/cooling unit is equipped with at least one heating unit outside the screw of the extruder.

19. ***(Withdrawn)*** The apparatus of Claim 18, further compromising a cooling unit which is inside the extruder.

20. ***(Withdrawn)*** The apparatus of Claim 18, wherein the extrusion die can be heated.

21. ***(Withdrawn)*** The apparatus of Claim 20, wherein the extrusion die can be heated both internally and externally.

22. ***(Withdrawn)*** The apparatus of Claim 21, wherein the extruder comprises a screw and the length of the screw of the extruder between the inlet and the outlet is greater than the length of the inlet.

23. ***(Withdrawn)*** The apparatus of Claim 18, wherein the extruder is equipped with two screws and is constructed as a twin screw extruder.

24. ***(Withdrawn)*** The apparatus of Claim 18, wherein the screws of the extruder have at least two sections of differing pitch.

25. ***(Withdrawn)*** The apparatus of Claim 24, wherein the pitch of the section closest to the outlet in the conveying direction is greater than that of the section closest to the inlet.

26. ***(Withdrawn)*** The apparatus of Claim 18, wherein the screws of the extruder are equipped with mixing elements in at least one section.

27. ***(Withdrawn)*** The apparatus of Claim 18, wherein the extruder further compromises a screw and the wall thickness of lands of said screw increases in the conveying direction.

28. ***(Withdrawn)*** The apparatus of Claim 18, wherein the extruder comprises a screw and diameter of the screw decreases in the conveying direction.

29. ***(Withdrawn)*** The apparatus of Claim 18, wherein the extruder compromises a screw and a screw which is hollow.